

## NEW SPECIES OF LONCHOCARPUS FROM PANAMA<sup>1</sup>

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Three Panamanian collections of *Lonchocarpus* which Dr. Robert Schery was unable to place among the species known from Central America were recently sent to the writer for study. All of them proved to be novelties for that region, as Dr. Schery had concluded: two of them undescribed species, of which the first is represented also in Costa Rica, and the third a tree of British Guiana, as follows:

*LONCHOCARPUS oliganthus*, sp. nov.—Frutex vel arbor gracilis ca. 10 m. alta; folia 5–7-foliolata; foliola oblonga vel elliptica multipunctata petiolulis subquadrangularibus; paniculae axillares 3–4 subspiciformes laxifloraeque foliis multo breviores; pedunculi secundarii minimi uniflori (raro biflori); pedicelli 0.5–0.7 mm. longi; flores 8–9 mm. longi, purpurei; calyx cupuliformis, margine integra vel aliquantum undulata; vexillum late oblongum vel oblongo-ovatum, externe dense argenteo-sericeum, margine valde inflexa; alae oblongae; carinae petala plus minusve falcata marginibus inferioribus solum per intervallum brevissimum apici propinquum connatis; stamen vexillare in fenestra et prope apicem columnae filamentarum liberum; ovarium 5–6-ovulatum; legumen ignotum.

Shrub or slender tree about 10 m. high, 17 cm. in diameter at base, with "dark brown, almost glabrous, shallowly striate bark" (Smith), and terete, glabrous, shallowly and irregularly sulcate branchlets dotted with small but conspicuous lenticels; stipules scale-like, oblong, 1 x 0.7 mm., dark brown, closely appressed; leaves 5–7-foliolate, 18–30 cm. long, the petiole subterete, canaliculate and often sulcate, glabrous or very sparingly strigose, 3.5–6.5 (averaging 4) cm. long, the rachis deeply canaliculate, sparsely strigose to glabrate; petiolules 4.5–6 mm. long, subquadrangular, minutely strigose to glabrous, dark brown to black, more or less canaliculate above; leaflets thin-chartaceous, oblong to elliptic, the blade 6–15 cm. long, 2.5–7 cm. wide, dark green (sometimes paler beneath), faintly but heavily mottled above with purplish brown, copiously strigose when young, at maturity glabrous or minutely and sparingly strigose beneath, multipunctate (each cell with several to many semitranslucent puncta), caudate at the apex, rounded or tapering at the base, the margin minutely crenulate, the lateral veins 9–10 pairs; panicles 3–4, borne singly in the upper leaf-axils, short (6–10 cm. long), much surpassed by the leaves, slender, subspiciform, loosely flowered; primary peduncles subterete to subquadrangular, glabrous or glabrate, slender (1 mm. or less wide at the base), floriferous to within 1.5–4 cm. of the base; secondary peduncles rudimentary, about 0.5 mm. long by 0.7–1 mm. wide, 1-, rarely 2-, flowered (the second flower commonly aborted); bracts and bractlets similar, squamiform, ovate, 0.7–1 mm.

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long, densely strigose, the bracts caducous, the bractlets attached near the base of the calyx; pedicels 0.5–0.7 mm. long; flowers 8–9 mm. long, "purple" (von Wedel); calyx cupuliform, 2.5–3 x 3 mm., reddish brown, minutely tawny-strigose, the margin entire or slightly undulate, the teeth, except the broadly deltoid carinal tooth (0.1–0.4 mm. long), obsolete; standard broadly oblong to oblong-obovate, 9 x 7 mm., reflexed, copiously silvery-sericeous without, glabrous and lineate within, "center and margin pale green-yellow enclosing an area of violet" (Smith), deeply emarginate and somewhat cucullate at the apex, the margin strongly inflexed, irregularly truncate at the base, the auricles very short (0.5 mm.), the claw 1.5 mm. long, a short (0.2 mm.) membranaceous crest between each auricle and the claw; wings 9 mm. long (the claw 2.5 mm.), 2.5 mm. wide, oblong, glabrous except for a sericeous median band (0.6 mm. wide), little widened at the blunt apex, the vexillar half of the blade slightly prolonged at the base to form a shallow auricle (0.7 mm.), adnate to the keel near the base; keel petals 8.5 mm. long (the claw 2.5 mm.), averaging 2.5 mm. wide, somewhat falcate, much broadened toward the blunt apex, their lower margins united only at a point below the apex, glabrous except for the lower margin which is increasingly sericeous toward the apex; stamens monadelphous, glabrous, the tube fenestrate at the base with the margins of the opening thickened, the vexillar stamen free at the opening (1 mm.) and also for the terminal 3 mm.; anthers versatile but attached near the base, 2-celled, narrowly elliptic, 0.8 mm. long; ovary compressed, linear, sessile or substipitate, densely white-strigose; ovules 5–6; style strigose at base, glabrous above; stigma capitellate; pod unknown.

PANAMA: PROVINCIA DE BOCAS DEL TORO: Gray Creek, vicinity of Chiriquí Lagoon, Sept. 8, 1941, *H. von Wedel 2634* (MO TYPE, US).

COSTA RICA: PROV. ALAJUELA: open shade in rain forest alt. 850 m., Villa Quesada, San Carlos Canton, Feb. 21 1939, *Austin Smith H 1613* (F, MO).

The small, sericeous flowers of this species, together with the only slightly coalescent keel petals, almost diadelphous androecium, narrowly oblong wings, and inflexed standard, place it in the subdivision of *NEUROSCAPHA* designated by Pittier as *PUBIFLORI*. Its nearest ally is *L. parviflorus* Benth., from which it differs in having leaflets which are twice to three times as large, relatively long (6–10, rather than 2.5 cm.), loosely flowered panicles, and larger flowers (8–9, rather than 6, mm. long). The larger leaflets of *L. oliganthus* set it off likewise from the related *L. atropurpureus* Benth., in which the pedicels are also occasionally, though not predominantly, uniflorous, and from this it is further distinguished by having petiolules twice as long, rudimentary secondary peduncles (0.5, rather than 2–3, mm. long), narrower and densely sericeous standard with claw 1.5 instead of 0.8 mm. long, and densely pubescent ovary.

*LONCHOCARPUS calcaratus*, sp. nov.—Arbor 9 m. alta, ramulis crassis verrucosis; stipulae squamiformes, dense strigosae, caducae; folia 9–11-foliolata; foliola subcoriacea, elliptico-lanceolata, epunctata, subtus strigosa; paniculae laterales, 25



cm. longae, axi primario florigeno simplici, valido, recto; axis secundarius 10–18 mm. longus, gracilis, 5–9 florus; pedicelli gracillimi, 5–6 mm. longi, bracteolis subulatis caducis strigosis prope basim calycis praediti; flores 16–17 mm. longi; calyx late cupuliformis vel cyathiformis, margine subintegra vel aliquantum undulata; vexillum orbiculare prope apicem emarginatum externe sparsissime sericeum; alae cymbiformes margine superiore basi leviter lobata; carinae petala oblongo-falcata ad basim lateraliter calcarata marginibus inferioribus vix connatis; stamen vexillare solum in fenestra columnae filamentarum liberum; ovarium 6–7-ovulatum; legumen ignotum.

Tree 9 m. high, with thick, subterete, often warty branches copiously marked with large, coarse lenticels; stipules squamiform, 2 mm. long, membranaceous, densely strigose, caducous; leaves 9- to 11-foliolate, 15–23 cm. long, the subterete petiole 2–5.5 cm. long, shallowly canaliculate, glabrous or glabrescent, the rachis sparsely strigose to glabrate; petiolules 3.5–5 mm. long, verrucose, conspicuously hirtellous, brown or occasionally olive-green, usually deeply but narrowly canaliculate above; leaflets subcoriaceous, elliptic-lanceolate, the blade 3.5–11 cm. long, 2–4 cm. wide, epunctate, glabrous or glabrescent above, strigose beneath, the apex obtuse, the base cuneate to abruptly acute, about 8–10 of the lateral veins prominent, not impressed, the margin entire, indurated; inflorescence lateral, paniculate, 25 cm. long; primary peduncle and rachis stout (3 mm. in diameter near the base), straight, unbranched, angular, very sparingly strigose, floriferous to within 3 cm. of the base; secondary peduncles 10–18 mm. long, slender, strigose, 5- to 9-flowered; bracts squamiform, 1 mm. long, densely strigose, promptly deciduous; pedicels very slender, 5–6 mm. long, strigose, the caducous copiously strigose bractlets subulate, 1 mm. long, attached near the base of the calyx; flowers 16–17 mm. long, "pink" (Allen); calyx broadly cupulate to cyathiform, firmly chartaceous, 3.5–4 x 8 mm., densely sericeous-strigose, the teeth prominent and broadly deltoid in the bud but the margin in anthesis subentire to shallowly undulate except for the apiculate (0.5 mm.) two lower teeth; standard orbicular, 15 x 15 mm., very sparingly sericeous without toward the emarginate apex, otherwise glabrous, the blade truncate to shallowly cordate at the base, the lobes almost obsolete, the cuneate claw covered by two inflexed, fleshy, partly adherent marginal flaps, their free edges meeting in the center; wings 16 mm. long (the claw 4.5 mm.), 7 mm. wide, cymbiform, very sparsely sericeous without toward the apex, adnate to the keel near the base, the vexillar margin abruptly rounded above the claw to form a broad, shallow lobe; keel petals 15 mm. long (the claw 5 mm.), 4 mm. wide, oblong-falcate, their lower margins united for a distance of 2.5 mm., 3.5 mm. below the obtuse to subacute apex, finely sericeous along the lower margin toward the apex, each petal bearing on its outer face an elongate (3 mm. long, 1.5 mm. wide), hollow spur or pocket midway between the margins, beginning 1 mm. forward from the claw; stamens monadelphous, the tube laterally compressed, fenestrate at the base, the vexillar stamen free only at the opening (2 mm.); anthers versatile but attached very near the base, 2-celled, ovate-oblong, 0.8 mm.



long; ovary linear, laterally compressed, densely white-strigose; ovules 6-7; style essentially glabrous; stigma capitellate; pod unknown.

PANAMA: PROV. DE COCLE: infrequent, El Valle, floor to 1800 ft., April 8, 1947, Paul H. Allen 4472 (MO TYPE).

The prolonged, several-flowered secondary peduncles of this species in conjunction with epunctate leaflets allocate it in Bentham's section PANICULATI—a group otherwise unknown from Middle America but comprising a single species (*L. praecox* Benth.) in Minas Geraes, Brazil, and four species in tropical Africa. Although no material of any species of the section is available for study, it is evident from Bentham's descriptions (even though the 3-line characterization of *L. praecox* leaves much to be desired) that it is more closely related to the Brazilian species than it is to the African members of the section. The illustration of *Lonchocarpus praecox* in Martius' 'Flora Brasiliensis' (Vol. 15, pt. 1, t. 105. 1862) depicts a plant with much shorter panicles than those of *L. calcaratus*, much stouter and more prolonged secondary peduncles (these almost equalling the primary in diameter and length), smaller flowers with the calyx sparsely hirtellous and more prominently toothed, and elliptic-oblong, not at all lanceolate, leaflets. The resemblance of the present species is actually much closer to the plate in Martius (t. 106) designated as *Lonchocarpus glabrescens* Benth. The figure of the inflorescence in this plate presents a stout and elongated primary floral axis with short and very slender secondary peduncles as in *L. calcaratus*, but such a conspicuously paniculate inflorescence is not in agreement with Bentham's diagnosis ("floribus fasciculatis") nor with modern collections from the valley of the Amazon which seem to be correctly referred to this species in the light of the original description. In these specimens the primary floral axis is decidedly woody with the characteristic rudimentary secondary peduncles of Bentham's section FASCICULATI to which he referred the plant. According to both Bentham's and modern accounts, *Lonchocarpus glabrescens* is, moreover, a liana with flowers having a subrostrate, strongly arcuate keel, usually 10 ovules, and more prominent calyx teeth.

The pronounced hollow spur in the carinal petals of *Lonchocarpus calcaratus* appears to be a feature almost unique in the genus, occurring otherwise, so far as the writer knows, only in *L. lineatus* Pittier of Guatemala. In the latter species the spur is much more shallow, and the two plants have few other characteristics in common.

#### LONCHOCARPUS DENSIFLORUS Benth.

A member of Bentham's section FASCICULATI, a group heretofore not known to be represented in Middle America. The possession of stipellate leaflets by *L. densiflorus* is an anomalous feature readily setting it off from other species.

PANAMA: PROVINCIA DE BOCAS DEL TORO: Laguna de Chiriquí and its neighborhood, Nov.-Dec., 1885, John Hart 99 (US) (distributed as *L. sericeus*); Almirante, Sept. 12, 1920, W. W. Rowlee & H. E. Stork 1002 (US) (distributed as *Andira* sp.). CANAL ZONE: vicinity of Mindi, Sept. 13, 1947, Paul H. Allen 5119 (MO, NA).